

REMARKS

This application has been reviewed in light of the Office Action mailed on June 21, 2004. Claims 1-20 are pending in the application with Claims 1, 6, 10 and 20 being in independent form.

About the Invention

The present invention relates generally to apparatuses and methods of operating multiple parallel closed power control loops between a mobile station (MS) and a plurality of base stations (BSs) to enable a fast BS selection process. The power control loops could be maintained between the MS and some or all of the BSs in the active set (a list of BSs maintained by the MS with which radio links of reasonable quality can be maintained). The power control loops are used to control the power of at least some or all of the downlink transmissions to the MS, and could also be used to control the power of the respective uplink transmissions. The closed power control loops with these BSs would enable a very fast selection to be made between them to decide which BS from among a plurality of BSs should transmit a packet to the MS. As an example, the BS to use for the transmission of a packet could be chosen to be the BS with the lowest transmit power on the power-controlled physical control channels. The closed loop power control ensures that the transmit power on the downlink channel is already at an appropriate level for the radio link conditions, and it could be used to help predict the most appropriate MCS and/or other parameters.

(1) In the Office Action, the Specification was objected to for failing to include section headings. Applicants respectfully decline to add headings as they are not required in accordance with MPEP §608.01(a).

(2) In the Office Action, Claims 1-7 and 10-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,603,971 issued to Mohebbi in view of U.S. Patent No. 6,373,823 issued to Chen et al (hereinafter "Chen").

Applicant respectfully traverses the rejection. Independent Claim 1 recites:

1. A radio communication system having physical control channels arranged for the bi-directional transmission of sets of control information between a secondary station and a plurality of primary stations, and at least one data channel between one or more primary stations, selected from the plurality of primary stations, and the secondary station for the transmission of data from the or each selected primary station to the secondary station, wherein respective closed-loop power control means are provided for adjusting individually the power of some or all physical control channels, or parts thereof, to which a set of control information is mapped. [Emphasis Added]

A key feature of the invention, as recited in Claim 1, is directed to maintaining sets of control information between an MS (i.e., secondary station) and some or all of the BSs in the active set (i.e., a plurality of primary stations). The power control loops are used to control the power of at least some or all of the downlink transmissions to the MS, and could also be used to control the power of the respective uplink transmissions.

Claim 1 recites in part, "...*having physical control channels arranged for the bi-directional transmission of sets of control information between a secondary station and a plurality of primary stations*".

It is noted that the operation of multiple parallel closed power control loops requires the transmission of respective multiple sets of control information in both the uplink and the downlink. This may be achieved either by mapping each set of control information to a separate uplink physical control channel or by time multiplexing all the sets of control information into one physical control channel.

Claim 1 recites the first approach, i.e., using multiple sets of control information in both the uplink and downlink, *wherein respective closed-loop power control means are provided for adjusting individually the power of some or all physical control channels, or parts thereof, to which a set of control information is mapped.*

Claim 3 recites the second approach :

3. A system as claimed in claim 1, characterised in that means are provided for transmitting power control commands relating to each downlink physical control channel, or part thereof, to which a set of control information is mapped via a single time-multiplexed uplink physical channel.

Another key feature of the invention, as recited in Claim 1, is the rapid selection of an optimum BS at any moment from among the plurality of BSs. Claim 1 recites in part, “ *...and at least one data channel between one or more primary stations, selected from the plurality of primary stations, and the secondary station for the transmission of data from the or each selected primary station to the secondary station... ”.*

In the Office Action, the Examiner asserts that Mohebbi teaches a radio communication system having physical control channels arranged for the bi-directional

transmission of sets of control information between a secondary station and a plurality of primary stations.

The Examiner further asserts that Chen teaches closed-loop power control means provided for adjusting individually the power of some or all physical control channels, or parts thereof, to which a set of control information is mapped.

It is respectfully submitted that Chen does not teach or disclose closed-loop power control means provided for adjusting individually the power of some or all physical control channels, or parts thereof, to which a set of control information is mapped.

Chen is generally directed to a power control system for controlling the transmission power in a system wherein the transmission power may be gated or capped. There is no teaching or disclosure of individually controlling the power of a multiplicity of base stations. Chen is clearly directed to a power control system in the context of a single MS communicating with a single base station BS. Support is found throughout the reference. For example, Fig. 1 clearly shows a single base station 1 communicating with a single mobile station MS 7. Further evidence is provided in Claim 1 of Chen which recites in part *"A power control system for controlling the transmission energy of signals from a remote transmitter"*.

It is respectfully submitted that at least the limitations and/or features of Claim 1 described above, are not disclosed or suggested by Chen and Mohebbi, alone, and in combination..

Accordingly, applicant respectfully request withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 1 and allowance thereof is respectfully requested.

Claims 2-5 depend from independent Claim 1 and therefore contain the limitations of Claim 1. Hence, for at least the same reasons given for Claim 1, Claims 2-5 are believed to be allowable over Chen and Mohebbi, alone, and in combination.

Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 2-5 is respectfully requested.

Claims 6, 10 and 20 recite features which are found in Claim 1. Hence, for at least the same reasons given for Claim 1, Claims 6, 10 and 20 are believed to be allowable over the cited references, alone and in combination.

Additionally, Claims 7 and 11-19 depend from independent Claims 6 and 10, respectively, and therefore contain the limitations of Claims 6 and 10. Hence, for at least the same reasons given for Claim 6 and 10, Claims 7 and 11-19 are believed to be allowable over the cited references, alone and in combination. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claim 6-7 and 10-20 and allowance thereof are respectfully requested.

(3) In the Office Action, Claims 8 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Mohebbi in view of Chen as applied to Claim 6 and in further view of U.S. Patent 6,385,462 to Baum et al. (hereinafter "Baum").

Claims 8 and 9 depend from independent Claim 6 and therefore contain the limitations of Claim 6. Hence, for at least the same reasons given for Claim 6, Claims 8 and 9 are believed to be allowable over the cited references, alone and in combination. Accordingly, withdrawal of the rejection under 35 U.S.C. §103(a) with respect to Claims 8 and 9 and allowance thereof are respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims presently pending in the application, namely, Claims 1-20 are believed to be in condition for allowance and patentably distinguishable over the art of record.

If the Examiner should have any questions concerning this communication or feels that an interview would be helpful, the Examiner is requested to call Dicron Halajian, Esq., Intellectual Property Counsel, Philips Electronics North America, at 914-333-9607

Respectfully submitted,



Michael A. Scaturro

Reg. No. 51,356

Attorney for Applicant

Mailing Address:
Intellectual Property Counsel
Philips Electronics North America Corp.
P.O. Box 3001
345 Scarborough Road
Briarcliff Manor, New York 10510-8001